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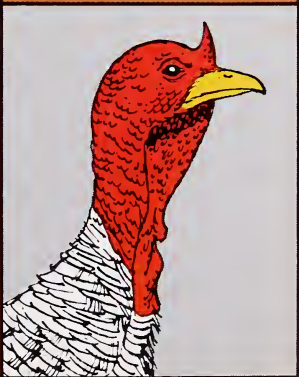
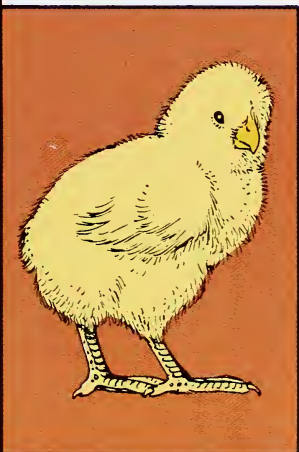
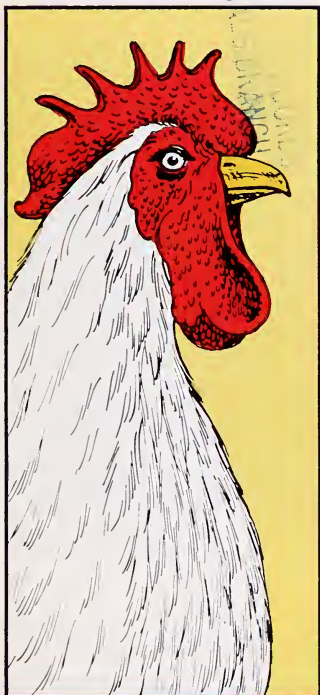
Animal and Plant Health Inspection Service

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Exotic Newcastle Disease

A Deadly Form of a Familiar
Poultry Disease



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Exotic Newcastle Disease

A Deadly Form of a Familiar Poultry Disease

Exotic Newcastle disease is a contagious and deadly viral disease affecting all species of birds. The virus causes bleeding in the lining of the trachea and in the intestines and reproductive organs, as well as severe diarrhea. It cuts production by killing many of the birds it infects and shortening the lives of those it doesn't destroy. If allowed to spread throughout the Nation, exotic Newcastle disease would cause annual losses to the poultry industry in excess of \$230 million.

There are different forms of Newcastle disease, ranging from mild to highly virulent. The milder forms of the disease, common in poultry in this country since the 1940s, have been controlled with vaccines.

The more virulent exotic Newcastle virus causes losses even in certain vaccinated poultry and a death rate approaching 100 percent in unvaccinated flocks. Birds kept in confinement, such as commercially raised chickens and turkeys, are highly vulnerable. Young birds are particularly susceptible.

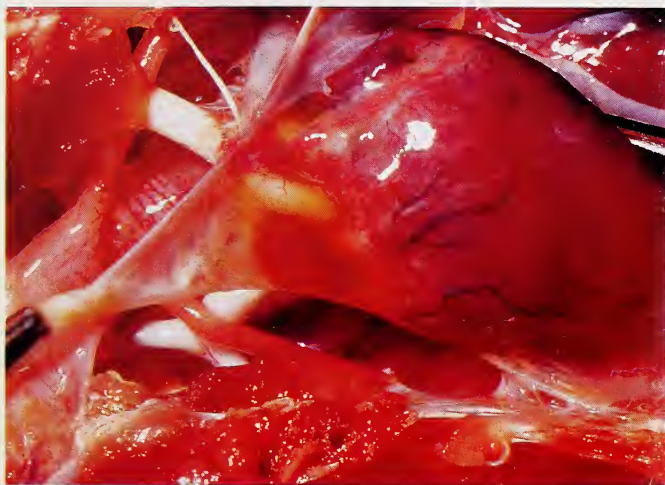
While exotic Newcastle disease is not a hazard to consumers of eggs and poultry, those working directly with diseased birds in an infected flock or with vaccines used against the domestic form of the disease may develop slight eye infections. These should be treated promptly by a physician.

History

The first case of exotic Newcastle disease in the United States occurred in 1950 in partridges and pheasants imported from Hong Kong. Other isolated cases occurred in 1970 and 1971 in imported birds, but the disease was quickly eliminated. In November 1971, a major outbreak occurred in commercial poultry flocks in southern California after a shipment of infected pet birds from Latin America and the Orient arrived in the poultry-rich San Bernardino Valley. Despite State and Federal efforts to contain the disease, it continued to spread, threatening not only the California poultry industry but the entire U.S. poultry and egg supply.



1. Facial edema and swelling



2. Hemorrhage of the heart and pericardial edema

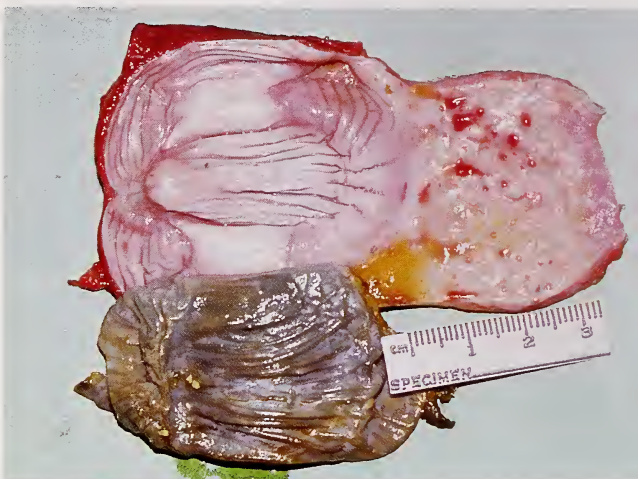
In March 1972, a national animal health emergency was declared and a major eradication campaign began. During the 2-year effort, 1,341 infected and exposed flocks were located and almost 12 million birds, mostly laying hens, were destroyed. The operation cost taxpayers approximately \$56 million and severely disrupted the operations of many producers and increased the prices of poultry and poultry products to consumers.

Signs

Exotic Newcastle disease affects the respiratory, nervous, and digestive systems. The latter effect, as well as the extreme severity of the exotic strain, differentiates it from



3. Hemorrhages in the trachea



4. Hemorrhages at the esophageal junction and in the proventriculus

domestic strains. The following signs in the exotic form may be seen:

- Difficult breathing, gasping
- Depression and droopiness
- Muscular tremors
- Twisted neck
- Drop in egg production from insignificant to almost 100 percent
- Decrease in weight gain
- Severe diarrhea—watery and greenish
- Increased death losses in a flock

Signs of the disease in turkeys are similar to the above but generally less severe.



5. Healthy chickens



6. Nervous disturbances: twisted neck, wing droop, and leg paralysis in a chicken

Post Mortem Lesions

Exotic Newcastle disease causes severe damage to the digestive tract. There are usually hemorrhages in the esophagus, proventriculus, at the cecal junction, and in the cloacal region. There is edema (swelling) of the head and wattles. Birds often appear to have black eyes and a straw-colored fluid drains from the eyes and nose.

Unlike the domestic forms of Newcastle disease, the exotic virus has a significant effect on internal organs. Although the most noticeable signs involve the intestinal tract, the trachea, heart, liver, and kidneys can also be affected.

Confusion with Other Diseases

Many other poultry diseases and conditions can be confused with exotic Newcastle disease, among them laryngotracheitis, aflatoxin poisoning, acute pasteurellosis, trichomoniasis, candidiasis, coccidiosis, enterohepatitis, highly pathogenic avian influenza, and even Vitamin A deficiency. Since the most obvious evidence of exotic Newcastle disease is internal, post mortem examination and laboratory tests are needed to confirm a diagnosis.

How It Spreads

The disease spreads primarily by direct contact between healthy birds and the body discharges of infected birds. The virus is contained in droppings of infected birds, as well as in secretions from the nose, mouth, and eyes. In the close confines of a poultry-raising or egg-laying operation, the disease spreads rapidly.

Because high concentrations of the virus are contained in body discharges, the disease can be spread easily by mechanical means. The virus can survive for several weeks in such materials as feathers, poultry, manure, and broken eggs.

Virus-bearing material can be picked up on shoes and clothing and carried from an infected flock to a healthy one. Thus the disease is often spread by vaccination and debeaking crews, manure haulers, rendering-truck drivers, feed deliverymen, poultry buyers, egg service people, and even by poultry farm owners and employees.

Wild birds have been found not to be involved in spreading the disease.



7. Necrotic patches surrounded by inflamed tissue in the intestinal wall

Susceptible Species

All species of birds are susceptible to exotic Newcastle disease. However, losses are greater in certain species than in others.

Chickens and turkeys are highly susceptible. Pheasants and quail also are very susceptible, especially if pen-raised.

Wildlife studies at the time of the California outbreak indicate that the exotic strain has not become established in free-flying wild birds in this country. Samplings of more than 6,000 wild birds captured in or around infected farms showed an infection rate of less than 0.1 percent. Despite this low incidence, poultry owners should protect flocks from wild birds that may try to nest in poultry houses or feed with domesticated birds.

Prevention and Control

The only effective way to stop exotic Newcastle disease is by rapidly destroying all infected flocks and imposing strict quarantine and indepth surveillance programs. A vaccination program has proven effective in reducing losses in the event of an outbreak, although it does not protect the flock 100 percent. Vaccinated birds can still become infected and shed the virus for many weeks and perhaps the remainder of their lives.

What Poultry Owners Can Do

To prevent exotic Newcastle disease in your flock, you should:

- Secure the entry gates to your premises and lock all poultry buildings.
- Allow only essential persons entry to your farm and control their movement. Do not visit other poultry premises and ask your employees not to do so.
- Do not keep pet birds on the farm and make certain you and your employees have no other contact with them.
- Exclude vaccination crews, catching crews, and other service personnel who may have been in contact with other poultry premises in the past 24 hours.
- Provide proper clothing and disinfection facilities for your employees and all persons entering your farm.
- Control the movement of all poultry and poultry products, including eggs, as well as equipment entering or leaving your premises. In layer flocks, accept only new or sanitized filler flats and egg cases.
- Maintain an “all-in—all-out” management philosophy



8. Central nervous symptoms in a conure with leg and wing paralysis and twisted neck

with a single-age flock. Clean and disinfect the farm between flocks. If you must have a multiage flock, clean and disinfect when an age group is replaced.

- If you raise meat birds, separate breeding operations from growing facilities.
- Control movements associated with the disposal and handling of bird carcasses, litter, and manure.
- IMMEDIATELY report suspicious symptoms or unexplained deaths of chickens to your veterinarian or State and Federal animal health officials. Notify these officials as well if you suspect exposure. Send diseased birds to a diagnostic laboratory for examination.
- In the event of an outbreak, cooperate fully with the prevention and control efforts described earlier.

What Pet Bird Enthusiasts Can Do

Exotic Newcastle disease is also a threat to the caged bird industry. Since smuggled birds from abroad are not quarantined by USDA, they may carry this virus while appearing perfectly healthy. If you are involved with pet birds, you should:

- Make certain any birds you purchase have not been smuggled. To learn how to guard against this, write: Smuggled Bird Fact Sheet, USDA-LPA, Room G-110, Federal Building, Hyattsville, MD 20782.
- If you suspect illegal activity, call USDA's Smuggled Bird Hotline: (301) 436-8073.

Supersedes PA-1092, Exotic Newcastle Disease—A New Form of a Familiar Poultry Disease

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